Supporting smokers with mental health problems

Ann McNeill, Professor of Tobacco Addiction
Dr Debbie Robson, Senior Post-Doc Researcher, Addictions Department
Declaration of Interests

• I receive no funding from tobacco, electronic cigarette or pharmaceutical companies
• Research is funded by voluntary and government sectors
• My salary is funded by King’s College London
Contents

• Context
• What works?
• What else is needed?
CONTEXT
Smoking and mental health - a review of the literature

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Independent Consultant &
Honorary Senior Lecturer in Public Health
St George’s Hospital Medical School
London

Smoking and Mental Health Symposium
9th November, 2001
Agenda

Venue: Royal Pharmaceutical Society, 1 Lambeth High Street, SE1

9.30 Registration and refreshments
10.00 Setting the scene
   Chair: Judith Watt, Head of Programme, SmokeFree London
10.05 Mental health and smoking – an opening address
   Professor John Moxham, Vice-Dean, Guy’s King’s & St Thomas’ Hospital School of Medicine, Professor of Respiratory Medicine, King’s College Hospital.
10.20 Service user perspective
   Diane Hackney
Cigarette smoking and psychiatric diagnosis in patients in institutions

Schizophrenia, delusional: 74%
Affective psychosis: 70%
Neurotic disorder: 74%

Homeless people:
- Residents of nightshelters: 85%
- Rough sleepers: 90%

Cigarette smoking prevalence %

OPCS Adult Psychiatric Morbidity Survey: Meltzer et al 1996

Base n=1180
# Smoking and mental health

(A Adult Psychiatric Morbidity Study, UK, 2007) Gen Pop prev 22%

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Smoking prevalence (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A common mental health disorder</td>
<td>34.0 (31.0–37.1)</td>
</tr>
<tr>
<td>Depressive episode</td>
<td>39.8 (33.2 - 46.8)</td>
</tr>
<tr>
<td>Phobias</td>
<td>42.8 (34.0 - 50.1)</td>
</tr>
<tr>
<td>Generalised anxiety disorder</td>
<td>37.4 (31.9 – 43.4)</td>
</tr>
<tr>
<td>Obsessive compulsive disorder</td>
<td>40.2 (28.3 – 53.5)</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>28.9 (19.6 - 40.4)</td>
</tr>
<tr>
<td>Mixed anxiety and depression</td>
<td>31.1 (27.1 - 35.3)</td>
</tr>
<tr>
<td>Probable psychosis</td>
<td>56.0 (33.3 – 76.3)</td>
</tr>
<tr>
<td>Post-traumatic stress disorder</td>
<td>40.4 (33.1 - 48.2)</td>
</tr>
<tr>
<td>Attention deficit hyperactivity disorder</td>
<td>39.1 (23.4 - 57.5)</td>
</tr>
<tr>
<td>Eating disorder</td>
<td>25.3 (17.3 - 35.4)</td>
</tr>
</tbody>
</table>
Smoking & longstanding mental disorders over time
(Szatkowski & McNeill, 2014; Royal College of Physicians, 2016)
Figure 20: Prevalence of common mental disorder (CMD), by smoking status (age-standardised)

Base: all adults

Smoking status by severity of illness (APMS, 1995 data)

Figure 4.1 Smoking status by CIS-R score

<table>
<thead>
<tr>
<th>CIS-R score</th>
<th>Never regular</th>
<th>Ex-regular</th>
<th>Light</th>
<th>Moderate</th>
<th>Heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–5</td>
<td>50</td>
<td>30</td>
<td>20</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6–11</td>
<td>40</td>
<td>40</td>
<td>20</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>12–17</td>
<td>40</td>
<td>30</td>
<td>30</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>18 and over</td>
<td>50</td>
<td>20</td>
<td>30</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>
Other ways smoking impedes recovery

- Higher doses of drugs such as clozapine and olanzapine
- **Poverty** (clients spent approx a third of their income on cigarettes)
- **Exploitation & stigma** (begging for cigarettes, picking up butts)
- 75% of psychiatric patients who smoke report smoking most/all of their cigarettes while **alone** (Prochaska et al, 2006)
## Life expectancy of men with serious mental illness (Chang et al, 2011)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Male</th>
<th>Life Expectancy (95% CI, number of deaths)</th>
<th>Difference from male UK population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Serious Mental Illness^</td>
<td></td>
<td>64.5 (63.3–65.6, n = 243)</td>
<td>−12.9</td>
</tr>
<tr>
<td>Schizophrenia (F20)^</td>
<td></td>
<td>62.8 (61.6–64.10, n = 196)</td>
<td>−14.6</td>
</tr>
<tr>
<td>Schizoaffective disorder (F25)^</td>
<td></td>
<td>69.4 (68.3–70.5, n = 16)</td>
<td>−8.0</td>
</tr>
<tr>
<td>Bipolar affective disorder (F31)^</td>
<td></td>
<td>67.3 (66.1–68.5, n = 43)</td>
<td>−10.1</td>
</tr>
<tr>
<td>Substance use disorders (F10–F19)^</td>
<td></td>
<td>63.9 (62.7–65.0, n = 254)</td>
<td>−13.6</td>
</tr>
<tr>
<td>Depressive episode and recurrent depressive disorder (F32–F33)^</td>
<td></td>
<td>66.8 (65.6–67.9, n = 284)</td>
<td>−10.6</td>
</tr>
</tbody>
</table>
“The life expectancy difference between current smokers with SPD and never smokers without SPD is primarily due to smoking. Aiding individuals with serious mental illness to avoid smoking will translate into sizeable gains in life expectancy.”

Why is there such a strong relationship between smoking and mental illness?
3 main hypotheses

Mental illness

Smoking

Other factors
In smoking, **nicotine** is delivered to the brain within a few seconds. Then stimulates nicotinic acetylcholine receptors located in the ventral tegmental area, which leads to the release of **dopamine** in the **nucleus accumbens**. Other neurotransmitters are involved.

**Similar neurotransmitters and pathways are involved in mental illness**
Motivation to quit?

<table>
<thead>
<tr>
<th></th>
<th>All respondents</th>
<th>People with a longstanding mental health problem</th>
<th>People taking a psychoactive medication</th>
<th>People scoring 3+ on the GHQ-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smokers who want to quit (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All respondents</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People with a longstanding mental health problem</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People taking a psychoactive medication</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People scoring 3+ on the GHQ-12</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary so far

1. www.smokinginengland.info 2016 data
Summary so far

• Smoking prevalence declining in general population but not among those with longstanding mental disorders
• Health inequality impact – cost of smoking, stigma
• Smoking impeding recovery
• Smoking affecting life expectancy
• Smokers want to stop
WHAT WORKS?
Varenicline (Champix)   Bupropion (Zyban)

OR

Nicotine replacement therapy

Behavioural support
Patient education
Close monitoring of mood
Regular follow-up
Neuropsychiatric safety and efficacy of varenicline, bupropion, and nicotine patch in smokers with and without psychiatric disorders (EAGLES): a double-blind, randomised, placebo-controlled clinical trial

Robert M Anthenelli, Neal I Benowitz, Robert West, Lisa St Aubin, Thomas McRae, David Lawrence, John Ascher, Cristina Russ, Alok Krishen, A Eden Evins

116 countries

Non-psychiatric cohort
n=4028

Psychiatric cohort
n=4116

Neuropsychiatric side effects e.g. anxiety, depression, aggression, delusions, hallucinations, psychosis, suicidal behaviour

Depression or bipolar disorder = 70%
Anxiety = 20%
Psychosis = 10%

Funded by the manufacturers of bupropion & varenicline
**Efficacy:** Quit rates at 9-24 weeks

**KEY MESSAGE**

Overall the abstinence rates in the psychiatric cohort were lower than the non psychiatric cohort, but...... the efficacy of the medications in terms of ORs is similar for smokers with or without psychiatric disorders whether you have a psychiatric history or not, **varenicline** appears to be the most effective single medication of all the first line treatments; whereas bupropion and nicotine patch are more effective than placebo.
**Key Message**

No significant increase in rates of moderate-to-severe neuropsychiatric adverse events with either varenicline or bupropion relative to nicotine patch or placebo in those with or without psychiatric disorders.
Efficacy and tolerability of pharmacotherapy for smoking cessation in adults with serious mental illness: a systematic review and network meta-analysis

Emmert Roberts¹, A. Eden Evins², Ann McNeill³ & Debbie Robson⁴

RR: 4.17 (1.61–10.78)

Varenicline for smoking cessation and reduction in people with severe mental illnesses: systematic review and meta-analysis

Qi Wu, Simon Gilbody, Emily Peckham, Sally Brabyn & Steve Parrott

Mental Health and Addiction Research Group, Department of Health Sciences, University of York, Heslington, York, UK

RR: 4.33 (1.96–9.56)
The delivery of smoking cessation interventions to primary care patients with mental health problems

Lisa Szatkowski & Ann McNeil

UK Centre for Tobacco Control Studies, University of Nottingham, Division of Epidemiology and Public Health, Nottingham, UK and UK Centre for Tobacco Control Studies, Institute of Psychiatry, King’s College London, London, UK

ABSTRACT

Aims To quantify the extent to which smokers with indicators of poor mental health receive smoking cessation support in primary care consultations compared with those without. Design Cross-sectional study within a database of electronic primary care medical records. Setting A total of 495 general practices in the United Kingdom contributing data to The Health Improvement Network (THIN) database. Participants A total of 2 493 085 patients aged 16+ registered with a THIN practice for the year from 1 July 2009 to 30 June 2010. Measurements The proportion of patients with a diagnostic Read code or British National Formulary (BNF) drug code indicating a mental health diagnosis or psychoactive medication prescription, respectively, who smoke and who have cessation advice or a smoking cessation medication prescription recorded during consultations within the 1-year study period. Findings Of 32 154 smokers, 50.6% [95% confidence interval (CI): 50.0–51.2] with a mental health diagnosis and 49.3% (95% CI: 49.0–49.7) of 96 285 smokers prescribed a psychoactive medication had a record of cessation advice, higher than the prevalence of advice recording in smokers without these indicators (33.4%, 95% CI: 33.3–33.6). Similarly, smoking cessation medication prescribing was higher: 11.2% (95% CI: 10.8–11.6) of smokers with a mental health diagnosis and 11.0% (95% CI: 10.8–11.2) of smokers prescribed psychoactive medication received a prescription, compared with 6.73% of smokers without these indicators (95% CI: 6.65–6.81). Smoking cessation support was offered in a lower proportion of consultations for smokers with indicators of poor mental health than for those without. Advice was recorded in 7.9% of consultations with smokers with a mental health diagnosis, 8.2% of consultations with smokers prescribed psychoactive medication and 12.3% of consultations with smokers without these indicators; comparable figures for prescribing of cessation medication were 2.9%, 3.2% and 4.4%, respectively. Conclusions Approximately half of smokers with indicators of poor mental health receive advice to quit during primary care consultations in the United Kingdom, and one in 10 receive a cessation medication. Interventions are lower per consultation for smokers with mental health indicators compared with smokers without mental health indicators.

Keywords Mental health, primary care, smoking cessation.
Fewer interventions in primary care
(Szatkowski & McNeill, 2013)

- Cross sectional: 2.5m patients 495 GP Practices
  **Interventions lower per consultation for smokers with MI**

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Number of smokers</th>
<th>% consultations where advice was recorded</th>
<th>% consultations where medication prescribed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients WITHOUT a mental health condition</td>
<td>387,246</td>
<td>12.30</td>
<td>4.37</td>
</tr>
<tr>
<td>Patients WITH a mental health condition</td>
<td>32,154</td>
<td>7.90</td>
<td>2.90</td>
</tr>
</tbody>
</table>
Electronic cigarette studies in smokers with mental illness

Impact of an Electronic Cigarette on Smoking Reduction and Cessation in Schizophrenic Smokers: A Prospective 12-Month Pilot Study

Pasquale Caponnetto, Roberta Auditore, Cristina Russo, Giorgio Carlo Cappello, and Riccardo Polosa

CTA-Villa Chiara Psychiatric Rehabilitation Clinic and Research, Mascalucia (Catania) 95030, Italy; E-Mails: robertaauditore@virgilio.it (R.A.); kristina_russo@yahoo.com (C.R.)

E-cigarettes versus NRT for smoking reduction or cessation in people with mental illness: secondary analysis of data from the ASCEND trial

Brigid O'Brien, Oliver Knight-West, Natalie Walker, Varsha Parag and Christopher Bullen

Abstract

Background: People with mental illness have higher rates of smoking than the general population and are at greater risk of smoking-related death and disability. In smokers from the general population, electronic cigarettes (e-cigarettes) have been shown to have a similar effect on quit rates as nicotine replacement therapy, but little is known about their effect in smokers with mental illness.
Change in mental health after smoking cessation: systematic review and meta-analysis

Gemma Taylor doctoral researcher\(^1\)\(^2\), Ann McNeill professor of tobacco addiction\(^2\)\(^3\), Alan Girling reader in medical statistics\(^1\), Amanda Farley lecturer in epidemiology\(^1\)\(^2\), Nicola Lindson-Hawley research fellow\(^2\)\(^4\), Paul Aveyard professor of behavioural medicine\(^2\)\(^4\)

\(^1\)School of Health and Population Sciences, University of Birmingham, Birmingham B15 2TT, UK; \(^2\)UK Centre for Tobacco and Alcohol Studies, Epidemiology and Public Health, University of Nottingham, NG7 1PB, UK; \(^3\)Institute of Psychiatry, King’s College London, London SE5 8AF, UK; \(^4\)Department of Primary Care Health Sciences, University of Oxford, Oxford OX1 2ET, UK

Abstract

Objective To investigate change in mental health after smoking cessation compared with continuing to smoke.

Design Systematic review and meta-analysis of observational studies.

Data sources Web of Science, Cochrane Central Register of Controlled Trials, Medline, Embase, and PsycINFO for relevant studies from inception to April 2012. Reference lists of included studies were hand searched, and authors were contacted when insufficient data were reported.

Eligibility criteria for selecting studies Longitudinal studies of adults that assessed mental health before smoking cessation and at least six weeks after cessation or baseline in healthy and clinical populations.

Results 26 studies that assessed mental health with questionnaires designed to measure anxiety, depression, mixed anxiety and depression, psychological quality of life, positive affect, and stress were included. Follow-up mental health scores were measured between seven weeks and 22 months.

Conclusions Smoking cessation is associated with reduced depression, anxiety, and stress and improved positive mood and quality of life compared with continuing to smoke. The effect size seems as large for those with psychiatric disorders as those without. The effect sizes are equal or larger than those of antidepressant treatment for mood and anxiety disorders.

Introduction

Tobacco is the leading global cause of preventable death, estimated to cause more than five million deaths a year, and this is predicted to rise.\(^1\) The worldwide cost of healthcare from tobacco use has been estimated within the billion dollar range.\(^2\) Smoking is a major risk factor for the development of cancers and cardiovascular and respiratory diseases;\(^3\), stopping smoking substantially reduces these health risks.\(^4\)\(^7\) The association between smoking and mental health, however, is less clear cut. Although most smokers report wanting to quit,\(^8\) many continue
### Example outcome: depression

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Weight %</th>
<th>Std. Mean Difference</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solomon 2006</td>
<td>8.8%</td>
<td>0.01</td>
<td>[-0.35, 0.37]</td>
</tr>
<tr>
<td>Berlin 2010</td>
<td>7.0%</td>
<td>-0.30</td>
<td>[-0.72, 0.12]</td>
</tr>
<tr>
<td>Blalock 2008</td>
<td>7.0%</td>
<td>-0.58</td>
<td>[-1.00, -0.16]</td>
</tr>
<tr>
<td>Dawkins 2009</td>
<td>5.4%</td>
<td>-0.39</td>
<td>[-0.88, 0.10]</td>
</tr>
<tr>
<td>Kahler 2011</td>
<td>7.2%</td>
<td>-0.28</td>
<td>[-0.69, 0.13]</td>
</tr>
<tr>
<td>Vazquez 1999</td>
<td>10.5%</td>
<td>-0.12</td>
<td>[-0.44, 0.20]</td>
</tr>
<tr>
<td>Busch 2011</td>
<td>8.6%</td>
<td>-0.30</td>
<td>[-0.67, 0.07]</td>
</tr>
<tr>
<td>Kahler 2002</td>
<td>7.7%</td>
<td>-0.69</td>
<td>[-1.09, -0.29]</td>
</tr>
<tr>
<td>Munafo 2008</td>
<td>20.5%</td>
<td>-0.09</td>
<td>[-0.27, 0.09]</td>
</tr>
<tr>
<td>Kinnunen 2006</td>
<td>17.3%</td>
<td>-0.21</td>
<td>[-0.42, 0.00]</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td>100.0%</td>
<td><strong>-0.25</strong></td>
<td><strong>[-0.37, -0.12]</strong></td>
</tr>
</tbody>
</table>

Heterogeneity: $\tau^2 = 0.01$; $\chi^2 = 12.83$, df = 9 ($P = 0.17$); $I^2 = 30\%$

Test for overall effect: $Z = 3.89$ ($P = 0.0001$)
Summary

• Good evidence that the same treatments work as with smokers without mental illness
• No significant difference in adverse effects between those with and without mental illness
• Some cautions and observe and follow up more closely
• Appears smokers with mental illness not being offered support as much as other smokers
• Smoking cessation is associated with improved mental health
WHAT ELSE IS NEEDED?
What else is needed?

• Smoke-free mental health settings
• National commitment
Smoke free mental health settings

• Smoking culture with regular smoking breaks. Enforced cycle of nicotine withdrawal

• Cigarettes used to reward and punish behaviour, to de-escalate aggression, encourage compliance with medication, attend to personal hygiene, to keep patients occupied etc

• Staff time facilitating smoking rather than therapeutic
• Cross sectional Survey with 67 staff from 25 wards in 4 hospitals
• 18 wards had designated daily supervised smoking breaks
• Average number of breaks per ward = 7.6 (sd 3.9)
• Average daily clinical time dedicated to supervising smoking was 2 hours 23 minutes a day per ward
• Opportunity cost was £18,503 £86,870 per ward per year.

**Key message to clinicians and managers:** every time staff facilitate smoking clinical time is diverted away from therapeutic activities that contribute to improved health.
Getting the balance right between treating tobacco dependence & implementing the smoke free policy

Enhanced infrastructure

Treatment pathway

Training pathway
Effect of implementation of a smoke-free policy on physical violence in a psychiatric inpatient setting: an interrupted time series analysis

Debbie Robson, Gilda Spaducci, Ann McNeill, Duncan Stewart, Tom J K Craig, Mary Yates, Lisa Szatkowski

Summary
Background Smoke-free policies are important to protect health and reduce health inequalities. A major barrier to policy implementation in psychiatric hospitals is staff concern that physical violence will increase. We aimed to assess the effect of implementing a comprehensive smoke-free policy on rates of physical assaults in a large UK mental health organisation.

Physical assaults perpetrated by patients -towards staff and other patients.
Extracted data using Datix – online Patient Safety Reporting System
Operationalised the definitions of physical assaults according to NHS Protect
Results (adjusted for time, seasonality & significant confounders)

- Overall violence: 39% (IRR 0.61, 95% CI 0.53-0.70)
- Patient toward staff: 47% (IRR 0.53, 95% CI 0.44-0.63)
- Patient toward patient: 15% (IRR 0.85, 95% CI 0.80-0.92)
The ambition of the Partnership, is to reduce smoking rates among people with a mental health condition: to 5% by 2035, with an interim target of 35% by 2020. It sets out clear recommendations for the actions needed to make this a reality.